REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claims 1-8 and 10-19 remain pending in the application. By the foregoing amendment claims 1, 7, 8, 10, 11 and 17 are amended; and claim 9 is canceled.

Claims 8, 10-16, 18 and 19

On page 2 of the Office Action, independent claim 8, along with various dependent claims, are rejected as being anticipated by EPO Publication 0 661 519 A1 (Sasaki). On page 3 of the Office Action, dependent claims 12, 13 and 15 are rejected as being unpatentable over the Sasaki publication. These rejections are respectfully traversed.

Applicant notes with appreciation the Examiner's indication on page 6 of the final Office Action that claims 9-11 and 19 contain allowable subject matter. In response, claim 8 incorporates the subject matter of claim 9; and claims 10 and 11 are amended to depend from claim 8.

As such, Applicant's independent claim 8 is allowable. The remaining claims depend from independent claim 8, and recite additional advantageous features which further distinguish over the documents relied upon by the Examiner. For example, the Sasaki publication does not teach or suggest "the optical radiation originating in the object being measured is detected by a color camera, and only that portion of the picture corresponding to the wavelength spectrum of the introduced optical radiation is processed," as recited in claim 14; "detection of the object being measured is done with a photoelectric picture-taking system which is integrated with the distance measuring instrument, and evaluation of signals detected is effected

with an evaluation unit disposed in the instrument, and a display is effected on an electronic display device which is provided on the distance measuring instrument," as recited in claim 16; and "the optical radiation is laser radiation in a visible spectrum," as recited in claim 18.

Further, claims 12 and 13, which depend from independent claim 8, recite additional advantageous features which further distinguish over the Sasaki publication relied upon by the Examiner. The feature "pictures are taken of the object being measured with a monochromatic picture-taking system," as recited in claim 12; and the feature "the pictures are taken with a monochromatic shooting camera with a photoelectric semiconductor component based on CMOS, and radiation detected by the picture-taking system is at least intermittently beforehand passed through a bandpass filter with a transmission in a wavelength range of the optical radiation," as recited in claim 13 are not disclosed or taught by the Sasaki publication. The recited features can, for example, improve the signal to noise ratio. The Sasaki publication discloses the use of a dichroic mirror only in connection with the (partial) separation of the incoming infrared radiation from the visible radiation, and does not teach or suggest monochromatic measurement to improve signal to noise ratios.

With respect to claim 15, the Sasaki publication does not teach or suggest the use of a separate device incorporating a camera, its own evaluation unit and display device which is coupled with the distance measuring instrument. The Sasaki patent does not teach or suggest "the optical radiation originating at the object being measured is detected with a camera that is disposed in a separate device, which is

equipped with its own evaluation unit and display device and is coupled with the distance measuring instrument," as recited in claim 15.

At least for the above reasons, claims 8, 10-16, 18 and 19 are allowable.

Claims 1-7 and 17

On page 4 of the Office Action, independent claim 1, along with various dependent claims, are rejected as being unpatentable over the Sasaki publication in view of WO 00/25089 (Ball). This rejection is respectfully traversed.

Applicant has disclosed a distance measuring instrument having a sighting device (e.g., paragraph [0005]). For example, a distance measuring instrument having a sighting device can include a transmitter for emitting an optical radiation in the visible wavelength spectrum which is capable of creating a visible measurement spot directly on an object to be measured; a receiving lens for receiving optical measurement radiation remitted or scattered by the object to be measured; a receiver, located behind the receiving lens, for converting the received optical measurement radiation into electrical measurement signals; a signal processing system for comparing the measurement signals with reference signals to determine a distance from the object being measured and to make a distance result available; and a sighting device including a photoelectric picture taking system capable of taking pictures of the object with and without the measurement spot on it, and which is connected with an evaluation unit for forming a differential value of the pictures taken; and an electronic display device on which the results of the evaluation unit may be displayed (e.g., specification at paragraph [0007]). The photoelectric picture taking system, the evaluation unit and the electronic display device can be disposed in a common housing which is equipped with a separate viewfinder lens for the

photoelectric picture-taking system (e.g., specification at paragraph [0008]). The distance measuring instrument can be a handheld device (e.g., specification at paragraph [0006]).

The disclosed features are broadly encompassed by claim 1, which recites, among other features, a distance measuring instrument having a sighting device, comprising: a transmitter for emitting an optical radiation in the visible wavelength spectrum; a receiving lens for receiving optical measurement radiation remitted or scattered by an object being measured; a receiver, located behind the receiving lens, for converting the optical measurement radiation into electrical measurement signals; and a signal processing system for comparing the measurement signals with reference signals to determine a distance from the object being measured and to make a distance result available to a user, wherein the transmitter is configured for creating a visible measurement spot directly on the object to be measured. The sighting device can include a photoelectric picture-taking system capable of taking pictures of the object with and without the measurement spot, which is connected to an electronic display device for taking pictures of the measurement spot on the object; and an evaluation unit for forming a differential value for pictures taken, the photoelectric picture-taking system of the sighting device and the electronic display device being disposed in a common housing which is equipped with a separate viewfinder lens for the photoelectric picture-taking system, the distance measurement instrument being a handheld device.

The Sasaki publication discloses a tripod mounted surveying instrument comprising an image sensor 4, an emitter 6, and a controller for detecting and determining the position of a target on the solid state sensor 4. The Sasaki

publication discloses a target prism 11 placed in relation to an object to be measured (Figs. 2(A)-2(C)). The target prism serves to reflect the transmitted infrared radiation (col. 3, lines 23-54).

Surveying instruments (or theodolites) of the generic type disclosed in the Sasaki publication have been used for triangulation in land surveying operations and geodesy. The measurement operation involves the theodolite and a target, which is positioned at the sites where a measurement (distance or angle) is to be performed. A survey detachment includes at least two people: one who operates the theodolite and one who transports and positions the target at the desired site. Without the target no measurement can be performed.

The surveying instrument (or theodolite) of the Sasaki publication is provided with automatic alignment equipment for the optical axis of a telescope of the instrument with the center of the target to eliminate individual (distance) measurement differences between surveyors. According to the Sasaki publication, the surveying instrument is provided with a solid state image sensor arranged to receive an image from a telescope of the instrument, an emitter for emitting a flash of light (infrared) towards the target (col. 3, lines 17 - 18), and a controller for detecting the position of the center of the target on the sensor based on the difference between an image received by the sensor when the emitter is on, and an image received when the emitter is off. (col. 1, lines 44 - 53).

Thus, the surveying instrument of Sasaki is provided with a telescope rotatable about a vertical or a horizontal axis, or both, a solid state image sensor, arranged to receive an image from the telescope, and an angle detector for detecting the angle of the telescope. An emitter is disclosed for emitting a flash of light

(infrared radiation) towards the target. A memory is disclosed for memorizing an image from the sensor and a controller for calculating an angular displacement based on angles which are detected by the angle detector when the emitter is on and when it is off, for calculating a difference between the two images obtained when the emitter is on and when it is off by shifting them so that the angular displacement is offset and for detecting the position of the center of the target from the difference between the two images (col. 1, line 54 - col. 2, line 12).

The Sasaki publication thus teaches a surveying instrument (or theodolite) which is tripod based. The surveying instrument of Sasaki is operated with radiation in the near infrared, which is not visible to the eye. Sasaki's device is not suited for performing distance measurements to any kind of object (walls of rooms or walls of buildings, tree-trunks or other land-marks). Even if the surveying instrument taught by the Sasaki publication was to be adapted for determination of a distance to an object, the target is placed at the site of the object for the surveying instrument to perform the distance measurement. The target as taught by the Sasaki publication involves transportation and placement of the target at the desired site.

The surveying instrument as taught by the Sasaki publication does not create a visible measurement spot directly on the object to be measured. The target as taught by the Sasaki publication is irradiated with a bundle of parallel beams of infrared radiation, the whole target being illuminated with infrared radiation. The target comprises an area which is sensed using infrared radiation, and capable of reflecting infrared radiation. Thus, a measurement spot is not created on a target by the incoming radiation.

In contrast, Applicant's claim 1 relates to a distance measuring instrument which uses optical radiation in the visible wavelength spectrum. Such distance measuring instruments can be handheld devices, operated by one person without a specific target. The visible radiation can create a measurement spot directly on the object to be measured. The identification can be simple and unambiguous even in unfavorable light conditions, such as, e.g. in bright sunshine. Such features are encompassed by Applicant's claim 1, and are not taught or suggested by Sasaki.

The Sasaki publication also fails to teach or suggest displaying the results of an evaluation of a comparison or pictures taken with and without the measurement spot on it. Displaying of such results is not even suggested in the Sasaki publication.

The Sasaki publication does not disclose a separate viewfinder lens for a photoelectric picture-taking system. Rather optical and infrared radiations enter the surveying instrument of Sasaki through the same objective lens 1 of Fig. 1.

As taught by the Sasaki publication, the target prism is placed at the target to effect the measurement. The target prism is used to obtain differences between the image when the emitter 6 is turned on and the image when it is turned off (col. 3, lines 45-54). The Sasaki publication displays the detected measurement values in deviations from an optical axis in horizontal and vertical directions, but the Sasaki publication does not teach or suggest showing detection results of an object with a measurement spot on an electronic display device.

The Ball publication does not cure the deficiencies of the Sasaki publication. The Ball publication discloses an imaging device used to capture a two dimensional image of a target. For example, the Ball publication discloses a camera 32 used to take a two-dimensional image of an object (page 37, lines 22-26). Based on

distance values determined from several perspectives, a 3-D image of the object is generated (page 37, lines 26-33). However, the Ball publication considered individually or in combination with the Sasaki publication, does not teach or suggest creation of a measurement spot directly on an object being measured.

As such, Applicant's independent claim 1 is allowable. The claims which depend from independent claims 1 recite additional advantageous features which further distinguish over the documents relied upon by the Examiner.

For example, regarding claim 2, the Sasaki publication does not teach or suggest a photoelectric semiconductor component on the basis of a CMOS design. The Ball publication was not specifically applied in this claim rejection, and does not cure the deficiencies of the Sasaki publication.

Regarding claim 3, the dichroic mirror in Sasaki relates to a (partial) separation of visible light from reflected infrared radiation (col. 3, lines 31-34). Sasaki does not teach or suggest photoelectric semiconductor component having a monochromatic sensitivity and the use of an optical band pass filter in order to enhance the signal to noise ratios. The Sasaki and Ball publications, considered individually or in combination, do not teach or suggest the aforementioned features which enhance signal to noise ratios.

Regarding claim 4, the Examiner asserts that the Sasaki publication teaches the display of a scene in color. This assertion is respectfully traversed. The Sasaki publication discloses an image display on a display unit such as a liquid crystal monitor, a CRT, or any other suitable device (col. 3, lines 41 - 43). Liquid crystal monitors usually are used for displaying black and white pictures. While CRT's are capable of displaying color pictures, there is no suggestion that a CRT used with a

portable surveying instrument as taught by the Sasaki publication is capable of a display in color. Accordingly, the Sasaki publication does not teach or suggest the photoelectric semiconductor component being a color camera chip, which is embodied for detecting the three primary colors. The Ball publication does not cure the deficiencies of the Sasaki publication.

The Sasaki publication, alone or in combination with the Ball publication, also fails to teach or suggest Applicant's claims 5-7. For example, these documents do not teach or suggest the use of a separate device incorporating a camera, its own evaluation unit and display device which is coupled with the distance measuring instrument. The Sasaki publication does not teach or suggest incorporation of a wireless capability. There would have been no motivation to incorporate the claimed features, including the wireless capability, with the surveying instrument disclosed in the Sasaki publication.

Regarding claim 7, the documents relied upon by the Examiner fail to teach that the display of the surveying instrument is capable of displaying differential pictures. There is no motivation for the surveying instrument disclosed in the Sasaki publication to display these results because the alignment of the device of Sasaki is performed automatically

In addition, the Sasaki and Ball publications do not teach or suggest the claim 17 features, and there would have been no motivation to modify the surveying instrument disclosed in the Sasaki publication to render obvious the claimed features.

As such, the present application is considered in condition for allowance. All objections and rejections raised in the Office Action having been addressed, it is

respectfully submitted that the application is in condition for allowance and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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By: Reg. No 48,360
Patrick C. Keane
Registration No. 32,858

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620